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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
PEREZ DAPLE, AARON C	
ART UNIT	**PAPER NUMBER**
2154	

DATE MAILED: 03/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/824,960	ARMITAGE, GRENVILLE J.	
	Examiner	Art Unit	
	Aaron C Perez-Daple	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/15/05*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Action is in response to Amendment filed 11/15/04, which has been fully considered.

2. Claims 1-14 are presented for examination.

3. This Action is Final.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 9-11** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the claim recites that a packet is transmitted out of the subnet (U1) by encapsulating packets with headers whose destination address is a group address (Mx) of the *first* interface of the home router. According to Applicant's own Fig. 2, in order to transmit a packet to a host outside of the subnet, the packet encapsulating header should have a destination address assigned to the *second* interface of the home router. For the purpose of applying prior art, the Examiner interprets that any teaching of transmitting a packet outside of a multicast subnet is sufficient to meet the limitations of the claim.

6. As dependent claims, claims 10 and 11 suffer from the same deficiencies as claim 9.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. **Claims 1, 2 and 4-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Perkins ed. (RFC 2002, http://www.ietf.org/rfc/rfc2002.txt?number=2002, October 1996) (hereinafter Perkins) in view of Harvey et al. (US 6,189,039 B1) (hereinafter Harvey).

9. As for claim 1, Perkins discloses a method of supporting a mobile host on an information network configured for multicast routing, comprising:

defining a subnet (U1) of the network that includes one or more mobile hosts and a first interface of a home router in the network, and identifying the first interface and the mobile hosts with corresponding unicast network addresses (U1.x) (Sections 1.4, 1.5 and 1.7; Both the long-term – or *home* – IP address and link-layer addresses are unicast addresses identified with the mobile nodes. Note that the home router also has a corresponding IP address and link-layer address.);

assigning the first interface of the home router and the mobile hosts corresponding group addresses (Mx) according to a defined relation with respect to said unicast network addresses (Section 4.4, Multicast Datagram Routing);

linking the mobile hosts with the network at corresponding points of attachment (Section 1.7, Protocol Overview, note registration);

sending a request from a given mobile host to join a group corresponding to a group address assigned to the given mobile host each time the mobile host links with the network at a new point of attachment, thereby enabling routers in the network to track the mobile host as it moves its link with the network from one point of attachment to another, and to route unicast packets originating from a host outside the subnet and destined to a given mobile host, by way of a virtual link defined between the home router and the given mobile host (Section 1.7, Protocol Overview, note registration and tunneling; Section 4.4, Multicast Datagram Routing, note joining of group and tunneling).

Perkins does not specifically disclose mapping, at the second interface of the home router, unicast addresses of packets received at the second interface and destined to members of the subnet, to the group addresses assigned to the members of the subnet. Harvey teaches:

identifying a second interface of the home router with a corresponding unicast network address (U2.x) (IP unicast socket connection, step 112, Fig. 6; col. 6, line 58 – col. 7, line 4); and

mapping, at the second interface of the home router, unicast addresses of packets received at the second interface and destined to members of the subnet (U1), to the group addresses (Mx) assigned to the members of the subnet (col. 6, line 58 – col. 7, line 4; Fig. 6).

Harvey's teachings provide the advantage of allowing communication between unicast and multicast subnets and minimizing network traffic (col. 1, lines 27-40; col. 1, line 62 – col. 2, line 11). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Perkins by mapping, at the second interface of the home router, unicast addresses of packets received at the second interface and destined to members of the

subnet, to the group addresses assigned to the members of the subnet in order to allow for communications between unicast and multicast subnets and minimize network traffic, as taught by Harvey above.

10. As for claim 2, Perkins teaches a method similar to claim 1, including linking a given mobile host with the network by way of a wireless link with a base station that is connected to the network (Section 1.2, Goals).

11. As for claim 4, Perkins teaches a method similar to claim 1, including assigning the mobile hosts unique local addresses (Lx) corresponding to the current points of attachment of the mobile hosts with the information network (link-layer address, Sections 1.6 and 1.7).

12. As for claim 5, Perkins teaches a method similar to claim, wherein a local address is assigned to a given mobile host by a network router associated the host's current point of attachment with the network (Section 1.7).

13. As for claim 6, Perkins teaches a method similar to claim 4, including transmitting information packets from a first mobile host on the subnet (U1) to a second mobile host on the subnet, by encapsulating the packets with an outer encapsulating header whose destination address is the group address (Mx) assigned to the second mobile host (Section 4.4, Multicast Datagram Routing).

14. As for claim 7, Perkins teaches a method similar to claim 6, including placing the local address (Lx) of the first mobile host as the source address in the encapsulating header (Section 1.7).

15. As for claim 8, Perkins teaches a method similar to claim 7, including placing the unicast address (U1.x) of the second mobile host as the destination address in an inner encapsulated

header of the packets, and placing the unicast address (U1.y) of the first mobile host as the source address in the encapsulated header (Sections 1.5 and 1.7).

16. As for claim 9, Perkins teaches a method similar to claim 4, including transmitting information packets from a given mobile host on the subnet (U1) to a host outside the subnet, by encapsulating the packets with an encapsulating header whose destination address is a group address (Mx) assigned to the first interface of the home router (Section 1.7; Section 4.4).

17. As for claim 10, Perkins teaches a method similar to claim 9, including placing the local address (Lx) of the given mobile host as the source address in the encapsulating header (Section 1.7).

18. As for claim 11, Perkins teaches a method similar to claim 10, including placing the unicast address (U2.x) of the host outside the subnet as the destination address in an inner encapsulated header of the packets, and placing the unicast address (U1.x) of the given mobile host as the source address in the encapsulated header (Sections 1.5 and 1.7).

19. As for claim 12, Perkins teaches a method similar to claim 1, including transmitting multicast information packets from a given mobile host on the subnet to a group (G) of other hosts on the network, by encapsulating the packets with an outer encapsulating header whose destination address is the group address (M1) assigned to the first interface of the home router (Section 4.4, Multicast Datagram Routing).

20. As for claim 13, Perkins teaches a method similar to claim 12, including placing the local address (Lx) of the given mobile host as the source address in the encapsulating header (Section 1.7).

21. As for claim 14, Perkins teaches a method similar to claim 13, including placing the group address (G) of the other hosts as the destination address in an inner encapsulated header of the packets, and placing the unicast address (U1.x) of the given mobile host as the source address in the encapsulated header (Sections 1.5 and 1.7).

22. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Perkins in view of Harvey and in further view of Reid (US 6,131,120) (hereinafter Reid). Although obvious to one of ordinary skill in the art, neither Perkins nor Harvey specifically disclose linking a given mobile host with the network by using a modem that is connected to a public switched telephone network having a server which is linked with the information network. Reid teaches linking a given mobile host with the network by using a modem that is connected to a public switched telephone network having a server which is linked with the information network (col. 1, lines 46-57; Fig. 1). It would have been obvious to one of ordinary skill in the art to modify the teachings of Perkins and Harvey by linking a given mobile host with the network by using a modem that is connected to a public switched telephone network having a server which is linked with the information network, in order to remotely access a network as taught by Reid above.

Response to Arguments

Claim Objections

23. Objections to claims 4, 8, 11, and 14 are hereby withdrawn in view of Amendment.

112 Claim Rejections

24. The rejection of claims 8, 11, and 14 under 35 USC 112, second paragraph, is hereby withdrawn in view of Amendment.

25. The rejection of claims 9-11 under 35 USC 112, second paragraph, is hereby maintained. Specifically, according to Applicant's own Fig. 2, in order to transmit a packet to a host outside of the subnet, the packet encapsulating header should have a destination address assigned to the *second* interface of the home router.

103 Claim Rejections

26. Applicant's arguments filed 11/15/04 have been fully considered but they are not persuasive.

As a preliminary matter, Applicant asserts on pg. 7 of the Remarks that the combination of Perkins and Harvey is improper. The Examiner respectfully disagrees. The Examiner finds that it is immaterial whether or not Harvey's techniques for streaming data occur "without regard to whether or not the mobile device which sends or receives the steaming data can be tracked or not (i.e. can receive the data or not)," because Harvey is not relied upon to teach these limitations of the claims. Harvey is relied upon only to teach the mapping of unicast to multicast (group) addresses. The combination is proper because Harvey teaches that such mapping can be used to reduce network traffic and increase the efficiency of data transmission over a network (col. 1, line 65 – col. 2, line 4), which methods could obviously be used to improve the efficiency of the networks taught by Perkins, as further detailed in the 103 rejection above.

Finally, Applicant's primary argument is that the references do not teach or suggest the mapping of unicast addresses of packets received at a second interface and destined to

members of a subnet to group addresses assigned to members of the subnet. Specifically, Applicant asserts that, "there is no indication, or suggestion, in Harvey that the 'multicast socket' is associated with a group address as is required by claims 1, 2 and 4-14 of the present invention." Again, the Examiner respectfully disagrees. *By definition*, a multicast address is a group address. Lines 1-5 of pg. 6 of Applicant's own specification make this point clear:

> The IP multicast service is an "any-to-many" model, wherein any host can transmit a packet to a multicast group destination address (a class "D" address in IPv4), and have the packet delivered to all hosts who are current members of the designated group.

As described in col. 6, lines 61-64, of Harvey and understood by one of ordinary skill in the art, a multicast *socket* comprises just such a multicast address. Therefore, the mapping taught be Harvey is precisely the mapping of a unicast address to corresponding group addresses of a subnet (where networks 12 and 14 of Fig. 1 of Harvey, for example, comprise separate subnets).

For all of these reasons, claims 1-14 are properly rejected under 35 USC 103(a).

Conclusion

27. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory

period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron C Perez-Daple whose telephone number is (571) 272-3974. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

3/29/05

Aaron Perez-Daple

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